

Quick Look at Inactivated Influenza Vaccines (Quadrivalent): IIV4, High-Dose IIV4 (HD-IIV4), and Adjuvanted IIV4 (aIIV4), 2023-24

Annual influenza vaccination is recommended for all persons aged 6 months and older, including all healthy persons!

Indications for Use and Schedule

- Age range for use varies by brand and presentation:
 - IIV4 (IM): for persons aged 6 months and older
 - HD-IIV4, and aIIV4 (IM): for persons aged 65 years and older
- Vaccination is recommended to be offered by the end of October and **continued throughout the flu season** until vaccine expires (see below for further timing considerations)

Key Points

- **With the exception of adults 65 years and older** there is no preference for any flu vaccine product over another
 - Ensure vaccination occurs with an **age-appropriate product and dose volume**
- **Adults 65 years and older** should preferentially receive either HD-IIV4, RIV4 or aIIV4
 - If one of these three vaccines is not available, then any other age-appropriate influenza vaccine should be used
- Some children aged 6 months through 8 years may need 2 doses of 2023-24 seasonal flu vaccine to best protect them (see below)
- Persons aged 9 years and older (at the time of their first dose of 2023-24 flu vaccine) only need 1 dose of flu vaccine, regardless of previous flu vaccination history

Vaccine Administration¹

- IIV4, HD-IIV4, and aIIV4: administer **intramuscular (IM)** in the deltoid of the arm (preferred) or the anterolateral thigh
 - Children: 1-inch needle
 - Adolescents/adults: 1- to 1.5-inch needle
- Must administer vaccine IM, if given by another route; should repeat dose as soon as possible
- All IIVs can be given with other vaccines at the same visit – do not miss an opportunity
 - Use separate sites, space at least 1-inch apart

Storage and Handling: All IIVs

- Store in the refrigerator at **36°F to 46°F (2°C to 8°C)**
- Pharmaceutical-grade (purpose-built) units are preferred for vaccine storage
- Do **not** freeze; keep in original box with lid on/protect from light
- Store different IIV formulations apart and label with age indications
- Do **not** use expired vaccine
- Multi-dose vials (MDV) – Afluria® Quadrivalent: once entered the MDV must be discarded within 28 days and no more than 20 punctures should be made to the MDV; Fluzone® Quadrivalent: a maximum of 10 doses (0.25 mL or 0.5 mL) can be withdrawn from the MDV

INFLUENZA DOSE VOLUME IS BASED ON AGE AND FLU VACCINE PRODUCT:

- For children aged 3 through 17 years and adults aged 18 years and older, dose volume for IIV4 is 0.5 mL per dose, with the exception of Fluzone® High-Dose Quadrivalent (HD-IIV4, licensed for 65 years and older) for which the correct volume is 0.7 mL per dose
- For children aged **6 through 35 months**, there are multiple licensed IIV products:
 - Dose volume per dose of **Afluria® Quadrivalent** is **0.25 mL**
 - Dose volume per dose of **FluLaval® Quadrivalent** and **Fluarix® Quadrivalent** is **0.5 mL**
 - Dose volume per dose of **Fluzone® Quadrivalent** can be **either 0.25 mL or 0.5 mL**; no preference is expressed for either Fluzone dose volume for this age group
 - Dose volume per dose of **Flucelvax® Quadrivalent (ccIIV4)** is **0.5 mL**
- For IIV4, the needed volume may be administered from a prefilled syringe containing the appropriate volume as supplied by the manufacturer, a single-dose vial, or a multi-dose vial
 - Fluzone Quadrivalent for children 6 through 35 months can be administered as either 0.25 mL or 0.5 mL per dose, however, the 0.25-mL prefilled syringes are not available, you must use an MDV for the 0.25mL

dose; if a prefilled syringe of Fluzone Quadrivalent is used for a child aged 6 through 35 months the dose volume will be 0.5 mL

- Single-dose, 0.5 mL Fluzone Quadrivalent vials should be used for only 1 dose, and multi-dose vials for only 10 doses, regardless of the volume of the doses taken or any remaining in the vial; any vaccine remaining after the maximum number of doses has been removed should be discarded
- If 0.25 mL is used from a Fluzone Quadrivalent 0.5 mL single-dose vial for a child aged 6 through 35 months, then the 0.25 mL remaining in the single-dose vial must be discarded; single-dose vials should only be used for 1 person even if there is vaccine remaining in the vial
- Refer to “2023-24 Seasonal Influenza Vaccine Dose Volumes for Children” at www.michigan.gov/flu/resources/resources-for-health-professionals

INFORMATION ON WHICH CHILDREN AGED 6 MONTHS THROUGH 8 YEARS NEED 2 DOSES OF FLU VACCINE:

- Determination of the number of doses needed is based on the number of doses of flu vaccine received in previous seasons and the age at the time of the first dose of 2023-24 flu vaccine
- Children aged 6 months through 8 years who received 2 or more total doses of any trivalent or quadrivalent flu vaccine (i.e., IIV3, IIV4, LAIV3, LAIV4, cclIV3, cclIV4) at least 4 weeks apart before July 1, 2023, only need 1 dose of 2023-24 flu vaccine
- If a child has not received at least 2 trivalent or quadrivalent flu vaccines at least 4 weeks apart before July 1, 2023, give 2 age-appropriate doses of 2023-24 flu vaccine separated by 4 weeks
 - Give the 1st dose as soon as possible after vaccine becomes available (including July and August if available) to allow the 2nd dose to be received by the end of October
 - If both doses have not been received by the end of October, still complete the 2-dose series
 - The same vaccine product does not need to be used for both doses; use any age-appropriate and correct dose volume flu vaccine
 - Both doses should be administered even if the child turns 9 years old between dose 1 and dose 2
- Refer to “Who Needs 2 Doses of 2023-24 Seasonal Influenza Vaccine?” at www.michigan.gov/flu/resources/resources-for-health-professionals

CONTRAINDICATIONS (PERSONS WHO SHOULD NOT RECEIVE IIV):

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose of any flu vaccine (i.e., any egg-based IIV, cclIV, RIV, or LAIV) or one of its components

PRECAUTIONS (IN CERTAIN CIRCUMSTANCES, PERSONS MAY RECEIVE IIV):

- Moderate or severe acute illness with or without fever
- History of Guillain-Barré syndrome (GBS) within 6 weeks of previous flu vaccination

FURTHER POINTS TO CONSIDER:

- ACIP recommends that all persons aged 6 months and older with egg allergy should receive influenza vaccine. Any influenza vaccine (egg based or nonegg based) that is otherwise appropriate for the recipient's age and health status can be used
 - Egg allergy alone necessitates no additional safety measures for influenza vaccine beyond those recommended for any recipient of any vaccine, regardless of severity of previous reaction to egg
 - All vaccines should be administered in settings in which personnel and equipment needed for rapid recognition and treatment of acute hypersensitivity reactions are available
 - Refer to “2023-24 Influenza Vaccine Screening for Persons Who Report Egg Allergy” at www.michigan.gov/flu/resources/resources-for-health-professionals
- Vaccination is recommended to be offered by the end of October and **continued throughout the flu season** until vaccine expires
 - For most adults (particularly adults aged 65 years and older) and for pregnant persons in the first or second trimester: Vaccination during July and August should be avoided unless there is concern that vaccination later in the season might not be possible
 - Pregnant persons in the 3rd trimester can be considered to receive flu vaccine soon after it arrives (July or August), as vaccination has shown to reduce risk of flu illness in infants in the 1st months of life

- ACIP recommends that adults 65 years and older preferentially receive any of the following influenza vaccines: quadrivalent high-dose inactivated influenza vaccine (HD-IIV4, Fluzone® High-Dose), quadrivalent recombinant influenza vaccine (RIV4, Flublok®), or quadrivalent adjuvanted inactivated influenza vaccine (aIIV4, Fluad®). If none of these three vaccines are available for vaccine administration, then any other age-appropriate influenza vaccine should be administered
- A CDC study showed a small increased risk for febrile seizures during the 24 hours following simultaneous administration of IIV and PCV13 and/or DTaP. ACIP has considered the risks and benefits and recommends these vaccines be given concomitantly when needed. For more information, refer to www.cdc.gov/vaccinesafety/concerns/febrile-seizures.html
- IIV can be given with all other vaccines and with antiviral medications; for more information, refer to www.cdc.gov/flu
 - Note: Because of the limited data on the safety of simultaneous administration of two or more vaccines containing nonaluminum adjuvants and the availability of nonadjuvanted influenza vaccine options, selection of a nonadjuvanted influenza vaccine may be considered in situations in which influenza vaccine and another vaccine containing a nonaluminum adjuvant are to be administered concomitantly. However, influenza vaccination should not be delayed if a specific vaccine is not available. As recommended for all vaccines, vaccines with nonaluminum adjuvants should be administered at separate anatomic sites from other vaccines that are given concomitantly
- Use current IIV/RIV Vaccine Information Statements (VIS) with details about the Michigan Care Improvement Registry (MCIR); Michigan VISs are posted at www.michigan.gov/VIS
- Document type of flu vaccine given as “IIV4,” “HD-IIV4,” or “aIIV4” on the vaccine administration record, electronic medical record (EMR), and the immunization record card
- For more information on Recombinant Influenza Vaccine (RIV4, Flublok® Quadrivalent), Cell Culture-based IIV (ccIIV4, Flucelvax® Quadrivalent), or Live Attenuated Influenza Vaccine (LAIV4, FluMist® Quadrivalent), refer to additional Quick Looks at www.michigan.gov/vaccinequicklooks

¹Assessment of needle size and injection site must be made for each person based on size of the muscle, thickness of adipose tissue at the injection site, volume of the material to be administered, and injection technique. For more information, see Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html.

For more guidance on influenza vaccine recommendations, refer to [Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023–24 Influenza Season | MMWR \(cdc.gov\)](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5712a1.htm) located at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html.

Publicly purchased IIV can be administered to eligible children aged 6 months through 18 years through the Vaccines for Children (VFC) program. Eligible children include those who are uninsured, underinsured, Medicaid eligible, American Indian, and Alaskan Native.

For more information regarding flu vaccination, contact your local health department, visit Michigan Department of Health and Human Services at www.Michigan.gov/flu, or visit www.cdc.gov/flu or www.cdc.gov/mmwr.